

1. TRANSMITTED DATA

1-1 CHANNEL MESSAGES [H]:Hex, [D]:Decimal

Status [H]	Second [H] [D]	Third [H]	Description	ENA
Bn	00 (00)	00	Program Bank Select(MSB)	P
Bn	20 (32)	0b	Program Bank Select(LSB)	P
Bn	cc	dd	Control Change	C
Cn	pp	--	Program Change	P

C : Transmit when Control Change Enable
P : Transmit when Program Change Enable

n : MIDI Channel Number (0 ~ 15)
b : Bank (0:User, 1:Preset)
cc : Control Number (0 ~ 120)
dd : Control Data (0 ~ 127 selected as Expression Source
0, 127 selected as Switch Control)
pp : Program Number (0 ~ 127)

1-2 UNIVERSAL SYSTEM EXCLUSIVE MESSAGES

DEVICE INQUIRY REPLY

Byte[H]	Description
F0	Exclusive Status
7E	Non Realtime Message
0n	MIDI Channel (Device ID)
06	Inquiry Message
02	Identity reply
42	KORG ID (Manufacturers ID)
4B	AM8000R ID (Family Code (LSB))
00	((MSB))
00	(Member Code (LSB))
00	((MSB))
xx	ROM No. 1 ~ (Minor Ver. (LSB))
00	((MSB))
xx	Soft Version (Major Ver. (LSB))
00	((MSB))
F7	End of Exclusive

This message is transmitted whenever a INQUIRY MESSAGE REQUEST is received.

1-3 SYSTEM EXCLUSIVE MESSAGES

AM8000R System Exclusive

1st Byte = 1111 0000 (F0) : Exclusive Status	Ex.Header	
2nd Byte = 0100 0010 (42) : KORG ID		
3rd Byte = 0011 nnnn (3n) : Format ID n:MIDI Channel		
4th Byte = 0100 1011 (4B) : AM8000R ID		
5th Byte = 0fff ffff (ff) : Function Code		
6th Byte = 0ddd dddd (dd) : Data		
LastByte = 1111 0111 (F7) : End of Exclusive		

Function ID [Hex]	Description	R	C	D	E
42	MODE DATA	o			
41	PARAMETER CHANGE		o		
40	PROGRAM PARAMETER DUMP	o	o	o	
50	ALL DATA DUMP	o		o	
26	RECEIVE MESSAGE FORMAT ERROR	o			o
23	DATA LOAD COMPLETED				o
24	DATA LOAD ERROR				o
21	WRITE COMPLETED				o
22	WRITE ERROR				o

Transmitted when Exclusive Enable and
R : Request message is received
C : Number changed by knob
D : Data dump by key
E : Exclusive message is received

2.RECOGNIZED RECEIVE DATA

2-1 CHANNEL MESSAGES

Status [Hex]	Second [H] [D]	Third [H]	Description	ENA
9n	kk	vv	Note On	D
Bn	00 (00)	00	Program Bank Select(MSB)	P
Bn	20 (32)	0b	Program Bank Select(LSB)	P
Bn	cc	dd	Cotrol Change	D
Bn	79(121)	00	Reset All Controllers	A
Cn	pp	--	Program Change	P
Dn	aa	--	After Touch	D
En	bb	bb	Pitch Bender	D

n : MIDI Channel Number (0 ~ 15)
 kk : Note Number (0 ~ 127)
 vv : Velocity (1 ~ 127)
 b : Bank (0:User, 1:Preset)
 cc : Control Number (0 ~ 120)
 dd : Control Data (0 ~ 127 selected as Expression Source
 0, 127 selected as Switch Control)
 pp : Program Number (0 ~ 127)
 aa : After Touch Data (0 ~ 127)
 bb : Pitch Bender Data (0 ~ 16383)

ENA = P : Enabled when MIDI Program Change Enable
 D : Enabled when MIDI Control Change Enable
 A : Always Enabled

2-2 UNIVERSAL SYSTEM EXCLUSIVE MESSAGE (NON REALTIME)

DEVICE INQUIRY MESSAGE REQUEST

Byte[H]	Description
F0	Exclusive Status
7E	Non Realtime Message
nn	MIDI Channel (Device ID)
06	Inquiry Message (Sub ID 1)
01	Inquiry Request (Sub ID 2)
F7	End of Exclusive

When receive this message and transmits Inquiry Reply Message.
 nn = 00 ~ 0F : Receive if same Channel
 7F : Receive any Channel

2-3 SYSTEM EXCLUSIVE MESSAGE

Function ID [Hex]	Description
12	MODE REQUEST
10	PROGRAM PARAMETER DUMP REQUEST
0F	ALL DATA DUMP REQUEST
11	PROGRAM WRITE REQUEST
0E	GLOBAL DATA SAVE REQUEST
40	PROGRAM PARAMETER DUMP
50	ALL DATA DUMP
41	PARAMETER CHANGE

Received when Exclusive Enable.

3.MIDI EXCLUSIVE FORMAT (R:Receive, T:Transmit)

(1) MODE REQUEST		R
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0001 0010 (12)	MODE REQUEST	12H
1111 0111 (F7)	EOX	

Receives this message, and transmits Func=42 message.

(2) PROGRAM PARAMETER DUMP REQUEST		R
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0001 0000 (10)	PROGRAM PARAMETER DUMP REQUEST	10H
1111 0111 (F7)	EOX	

Receives this message, and transmits Func=40 or Func=24 message.

(3) ALL DATA (UTILITY AND ALL PROGRAM) DUMP REQUEST		R
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0000 1111 (0F)	ALL DATA DUMP REQUEST	0FH
1111 0111 (F7)	EOX	

Receives this message, and transmits Func=50 or Func=24 message.

(4) PROGRAM WRITE REQUEST		R
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0001 0001 (11)	PROGRAM WRITE REQUEST	11H
0ppp pppp	Write Program Number	(NOTE 2)
1111 0111 (F7)	EOX	

Receives this message, write program data and transmits Func=21 or Func=22 message.

(5) GLOBAL DATA SAVE REQUEST		R
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0000 1110 (0E)	GLOBAL DATA SAVE REQUEST	0EH
1111 0111 (F7)	EOX	

Receives this message, save utility data and transmits Func=21 or Func=22 message.

(6) PROGRAM PARAMETER DUMP		R, T
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0100 0000 (40)	PROGRAM PARAMETER DUMP	40H
0ddd dddd	Data	(NOTE 3)
:	:	
1111 0111 (F7)	EOX	

Receives this message and data, and transmits Func=23 or Func=24 message.
 Receives Func=10 message, and transmits this message and data.
 When the Program number is changed by knob, transmits this message and data.
 Transmits this message and data by DUMP key.

(7) ALL DATA (UTILITY AND ALL PROGRAM) DUMP		R, T
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0101 0000 (50)	ALL DATA DUMP	50H
0ddd dddd	Data	(NOTE 4)
:	:	
1111 0111 (F7)	EOX	

Receives this message and data, and transmits Func=23 or Func=24 message.

Receives Func=0F message, and transmits this message and data.
Transmits this message and data by DUMP key.

(8) PARAMETER CHANGE		R, T
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0100 0001 (41)	PARAMETER CHANGE	41H
0000 00ds	Main/Sub Stage	(NOTE 6, TABLE 1~5)
0ppp pppp	Main Page Number	(TABLE 1~5)
0ppp pppp	Sub Page Number	(TABLE 1~5)
0vvv vvvv	Value (MSB bit13 ~ 7)	(NOTE 5)
0vvv vvvv	Value (LSB bit 6 ~ 0)	(NOTE 5)
1111 0111 (F7)	EOX	

Receives this message and data, and transmits Func=23 or Func=24 message.
When Parameter is changed by knob, transmits this message and data.

(9) MODE DATA		R, T
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0100 0010 (42)	MODE DATA	42H
0000 00mm	Mode Data	(NOTE 1)
1111 0111 (F7)	EOX	

Receives Func=12 message, and transmits this message and data.

(10) DATA FORMAT ERROR		T
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0010 0110 (26)	DATA FORMAT ERROR	26H
1111 0111 (F7)	EOX	

Transmits this message when there is an error in MIDI in message.

(11) DATA LOAD COMPLETED		T
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0010 0011 (23)	DATA LOAD COMPLETED	23H
1111 0111 (F7)	EOX	

Transmits this message when DATA LOAD, PROCESSING have been completed.

(12) DATA LOAD ERROR		T
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0010 0100 (24)	DATA LOAD ERROR	24H
1111 0111 (F7)	EOX	

Transmits this message when DATA LOAD, PROCESSING have not been completed.

(13) WRITE COMPLETED		T
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0010 0001 (21)	WRITE COMPLETED	21H
1111 0111 (F7)	EOX	

Transmits this message when DATA WRITE by MIDI has been completed.

(14) WRITE ERROR		T
Byte	Description	
F0,42,3n,4B	EXCLUSIVE HEADER	
0010 0010 (22)	WRITE ERROR	22H
1111 0111 (F7)	EOX	

Transmits this message when DATA WRITE by MIDI has not been completed.

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NOTE 1 : mm = 0 : Play Mode
          1 : Edit Mode
          2 : Utility Mode
          3 : Write, Compare Mode
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NOTE 2 : ppp pppp = 0 ~ 127

Dump Data Format for NOTE 3 & 4
n = 0, 1, ...

[illegible]

NOTE 3 : Program Parameter dump format (see TABLE 1)
 [Parameter byte No.00], ... , [Parameter byte No.122]
 123byte = $7 \times 17 + 4 \rightarrow 8 \times 17 + (4 + 1) = 141$ byte

NOTE 4 : All Data dump format

[Utility Data (26byte)],	(see TABLE 2)
[Map Data (128byte)],	(see TABLE 3)
[Prog.00 (123byte)], ... , [Prog.127 (123byte)]	(see NOTE 3)
[reserved, 128byte]	

16026byte = $7 \times 2289 + 3 \rightarrow 8 \times 2289 + (3+1) = 18316\text{byte}$

NOTE 5 : Value Data Format

Value Data

MIDI data

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NOTE 6 : s = 0 : Main Parameter Edit
          1 : Sub Parameter Edit

          d = 0 : Display Change Enable
              1 : Display Change Disable
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TABLE 1 PROGRAM PARAMETERS

BIT No. *1	PARAMETERS	DATA(HEX) : VALUE	PARAM. No.	EXPRESSION TARGET DATA
0 ~ 7	PROGRAM NAME(Head)	20 ~ 60 : ' ' ~ ' ' : [ASCII Code]	01,13,00	
88 ~ 95	PROGRAM NAME(Tail)		01,13,0B	
EFFECT TYPE				
96 ~ 100	FX1 TYPE	0 ~ 1C : SCHO/FLN ~ SDUCKER	00,02,00	
101 ~ 105	FX2 TYPE	0 ~ 1C : SCHO/FLN ~ SDUCKER	00,03,00	
106 ~ 109	DLY/REV TYPE	0 ~ 0A : LONG DLY ~ PLATE	00,04,00	
110	(Reserved)			
SIGNAL PATH				
111	SIGNAL PATH	0:FX2>D/R, 1:D/R>FX2	00,08,00	

FX1 PARAMETERS				
112 ~ 231		TABLE 4		01,02,**
FX2 PARAMETERS				
232 ~ 351		TABLE 4		01,03,**
DLY/REV PARAMETERS				
352 ~ 543		TABLE 5		01,04,**
PRE EQ				
544	PRE EQ ON/OFF		0:OFF, 1:ON	00,01,00
545 ~ 550	PRE EQ LOW GAIN		0 ~ 3C : -15.0 ~ 15.0dB	01,01,00
551 ~ 555	PRE EQ LOW FREQUENCY		0 ~ 1E : 31.5 ~ 1KHz	01,01,01
556 ~ 561	PRE EQ MID GAIN		0 ~ 3C : -15.0 ~ 15.0dB	01,01,02
562 ~ 567	PRE EQ MID FREQUENCY		0 ~ 1E : 31.5 ~ 1KHz	01,01,03
568 ~ 574	PRE EQ MID Q		0 ~ 61 : 0.3 ~ 10.0	01,01,04
575 ~ 580	PRE EQ HIGH GAIN		0 ~ 3C : -15.0 ~ 15.0dB	01,01,05
581 ~ 585	PRE EQ HIGH FREQUENCY		0 ~ 1E : 31.5 ~ 1KHz	01,01,06
586 ~ 591	PRE EQ LEVEL		0 ~ 3D : -INF ~ 6.0dB	01,01,07
592 ~ 642	(Reserved)			
FX1 SOURCE				
643	DIRECT PATH		0:PRE EQ, 1:POST EQ	01,05,00
FX2 SOURCE				
644 ~ 650	FX1>FX2 LEVEL		0 ~ 5B : -INF ~ 0dB	01,06,01 01
651 ~ 657	D/R>FX2 LEVEL		0 ~ 5B : -INF ~ 0dB	01,06,02 02
658 ~ 664	DIR>FX2 LEVEL		0 ~ 5B : -INF ~ 0dB	01,06,00 00
665	DIRECT PATH		0:PRE EQ, 1:POST EQ	01,06,03
DLY/REV SOURCE				
666 ~ 672	FX1>D/R LEVEL		0 ~ 5B : -INF ~ 0dB	01,07,01 04
673 ~ 679	FX2>D/R LEVEL		0 ~ 5B : -INF ~ 0dB	01,07,02 05
680 ~ 686	DIR>D/R LEVEL		0 ~ 5B : -INF ~ 0dB	01,07,00 03
687	DIRECT PATH		0:PRE EQ, 1:POST EQ	01,07,03
688 ~ 693	(Reserved)			
MIXER				
694 ~ 700	FX1 LEVEL		0 ~ 5B : -INF ~ 0dB	01,09,00 06
701 ~ 705	FX1 PAN		0 ~ 1E : L15 ~ R15	01,09,05 0B
706 ~ 712	FX2 LEVEL		0 ~ 5B : -INF ~ 0dB	01,09,01 07
713 ~ 717	FX2 PAN		0 ~ 1E : L15 ~ R15	01,09,06 0C
718 ~ 724	DLY/REV LEVEL		0 ~ 5B : -INF ~ 0dB	01,09,02 08
725 ~ 729	DLY/REV PAN		0 ~ 1E : L15 ~ R15	01,09,07 0D
730 ~ 736	WET LEVEL		0 ~ 5B : -INF ~ 0dB	01,09,03 09
737 ~ 741	WET L/R BALANCE		0 ~ 1E : L15 ~ R15	01,09,08
742 ~ 746	WET SPREAD		0 ~ 1E : 0 ~ 30	01,09,0A 0F
747 ~ 753	DIRECT LEVEL		0 ~ 5B : -INF ~ 0dB	01,09,04 0A
754 ~ 758	DIRECT L/R BALANCE		0 ~ 1E : L15 ~ R15	01,09,09 0E
759	DIRECT PATH		0:PRE EQ, 1:POST EQ	01,09,0B
EXPRESSION				
760	EXPRESSION 1 ON/OFF		0:OFF, 1:ON	00,0A,00
761	EXPRESSION 2 ON/OFF		0:OFF, 1:ON	00,0B,00

762	EXPRESSION 3 ON/OFF	0:OFF, 1:ON	00,0C,00
763	EXPRESSION 4 ON/OFF	0:OFF, 1:ON	00,0D,00
764	EXPRESSION 5 ON/OFF	0:OFF, 1:ON	00,0E,00
765	EXPRESSION 6 ON/OFF	0:OFF, 1:ON	00,0F,00
766	EXPRESSION 7 ON/OFF	0:OFF, 1:ON	00,10,00
767	EXPRESSION 8 ON/OFF	0:OFF, 1:ON	00,11,00
768 ~ 774	EXPRESSION 1 TARGET	*2	01,0A,00
775 ~ 781	EXPRESSION 2 TARGET	*2	01,0B,00
782 ~ 788	EXPRESSION 3 TARGET	*2	01,0C,00
789 ~ 795	EXPRESSION 4 TARGET	*2	01,0D,00
796 ~ 802	EXPRESSION 5 TARGET	*2	01,0E,00
803 ~ 809	EXPRESSION 6 TARGET	*2	01,0F,00
810 ~ 816	EXPRESSION 7 TARGET	*2	01,10,00
817 ~ 823	EXPRESSION 8 TARGET	*2	01,11,00
824 ~ 827	EXPRESSION 1 SOURCE	2 ~ 9 : CR1~CR8	01,0A,01
828 ~ 831	EXPRESSION 2 SOURCE	2 ~ 9 : CR1~CR8	01,0B,01
832 ~ 835	EXPRESSION 3 SOURCE	2 ~ 9 : CR1~CR8	01,0C,01
836 ~ 839	EXPRESSION 4 SOURCE	2 ~ 9 : CR1~CR8	01,0D,01
840 ~ 843	EXPRESSION 5 SOURCE	2 ~ 9 : CR1~CR8	01,0E,01
844 ~ 847	EXPRESSION 6 SOURCE	2 ~ 9 : CR1~CR8	01,0F,01
848 ~ 851	EXPRESSION 7 SOURCE	2 ~ 9 : CR1~CR8	01,10,01
852 ~ 855	EXPRESSION 8 SOURCE	2 ~ 9 : CR1~CR8	01,11,01
856 ~ 866	EXPRESSION 1 RANGE	*3	01,0A,02
867 ~ 877	EXPRESSION 2 RANGE	*3	01,0B,02
878 ~ 888	EXPRESSION 3 RANGE	*3	01,0C,02
889 ~ 899	EXPRESSION 4 RANGE	*3	01,0D,02
900 ~ 910	EXPRESSION 5 RANGE	*3	01,0E,02
911 ~ 921	EXPRESSION 6 RANGE	*3	01,0F,02
922 ~ 932	EXPRESSION 7 RANGE	*3	01,10,02
933 ~ 943	EXPRESSION 8 RANGE	*3	01,11,02
944	EXPRESSION 1 POLARITY	0:+, 1:-	01,0A,03
945	EXPRESSION 2 POLARITY	0:+, 1:-	01,0B,03
946	EXPRESSION 3 POLARITY	0:+, 1:-	01,0C,03
947	EXPRESSION 4 POLARITY	0:+, 1:-	01,0D,03
948	EXPRESSION 5 POLARITY	0:+, 1:-	01,0E,03
949	EXPRESSION 6 POLARITY	0:+, 1:-	01,0F,03
950	EXPRESSION 7 POLARITY	0:+, 1:-	01,10,03
951	EXPRESSION 8 POLARITY	0:+, 1:-	01,11,03
WARP RESOLUTION			
952 ~ 956	WARP RESOLUTION	0 ~ 17 : 0 ~ 20	00,12,00
957 ~ 983	(reserved)		

TABLE 2 UTILITY PARAMETERS

BYTE No. (BIT)	PARAMETERS	DATA (HEX) : VALUE	PARAM. No.
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00	BIT7	PROGRAM CHANGE MODE	0:DIRECT, 1:2STEP	01,16,00
	BIT6	ABBREVIATION MODE	0:ABBREVIATION, 1:ROTATE	01,19,02
	BIT5	MAP ON/OFF	0:OFF, 1:ON	00,17,00
	BIT4	CONTROL INITIALIZE	0:DISABLE, 1:ENABLE	01,14,08
	BIT3~0	(reserved)		
01		CONTROLLER 1	00 ~ 80 : *4	01,14,00
02		CONTROLLER 2	00 ~ 80 : *4	01,14,01
03		CONTROLLER 3	00 ~ 80 : *4	01,14,02
04		CONTROLLER 4	00 ~ 80 : *4	01,14,03
05		CONTROLLER 5	00 ~ 80 : *4	01,14,04
06		CONTROLLER 6	00 ~ 80 : *4	01,14,05
07		CONTROLLER 7	00 ~ 80 : *4	01,14,06
08		CONTROLLER 8	00 ~ 80 : *4	01,14,07
09		WAKE UP PROGRAM	00 ~ FF : 0 ~ 255	01,16,01
10		ENVELOPE SENS	00 ~ 1E : 0 ~ 30	01,18,00
11, 12		(reserved)		
13		ABBREVIATION TIME	00 ~ 08 : 0 ~ 8	01,19,01
14		DIMMER	00 ~ 07 : 1 ~ 8	01,19,03
15		FX1 SW CTRL CHG No.	00 ~ 78 : CONTROL CHANGE 0~120	01,15,06
16		FX2 SW CTRL CHG No.	00 ~ 78 : CONTROL CHANGE 0~120	01,15,07
17		DLY/REV SW CTRL CHG No.	00 ~ 78 : CONTROL CHANGE 0~120	01,15,08
18		BYPASS SW CTRL CHG No.	00 ~ 78 : CONTROL CHANGE 0~120	01,15,09
19		(reserved)		
20		DISPLAY MODE	00 ~ 02 : NAME, NUM, MAP	01,19,00
21		BYPASS PEDAL	00 ~ 04 : L, H, U, D, U/D	01,1A,00
22, 23		(reserved)		
24		DIRECT OFFSET	00 ~ 5B : -INF, -60 ~ 0dB	01,1C,00
25		WET OFFSET	00 ~ 5B : -INF, -60 ~ 0dB	01,1C,01

TABLE 3 MAP PARAMETERS

BYTE No.	PARAMETERS	DATA(HEX) : VALUE	PARAM. No.
00	MAP NUMBER 00	00 .. FF : 0 .. 255	01,17,00
127	MAP NUMBER 127		01,17,7F

TABLE 4 FX1/FX2 PROGRAM PARAMETERS

BIT No. *1	PARAMETERS	DATA(HEX) : VALUE	PARAM. No. *5	EXPRESSION TARGET DATA *6
	STEREO CHORUS / FLANGER			
0 ~ 9	DELAY TIME	0 ~ 117 : 0.1 ~ 60.0ms	01,02,00	20
10 ~ 19	(Reserved)			
20 ~ 26	MOD DEPTH	0 ~ 63 : 0 ~ 99	01,02,04	24
27 ~ 33	(Reserved)			
34 ~ 41	FEEDBACK	0 ~ C6 : -99 ~ 99	01,02,01	21
42 ~ 49	(Reserved)			
50 ~ 54	HIGH DAMP	0 ~ 19 : THRU, 16K ~ 1kHz	01,02,02	22

55 ~ 59	(Reserved)				
60 ~ 64	LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,02,03	23
65 ~ 69	(Reserved)				
70	POLARITY	0:+, 1:-		01,02,0C	
71 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,07	
81 ~ 88	LFO SPEED	0 ~ AE	: 0.01 ~ 16.0Hz	01,02,08	27
89 ~ 97	MOD STEP	9 ~ EB	: OFF, 0.10 ~ 40.0Hz	01,02,05	25
98 ~ 103	LFO PHASE	0 ~ 24	: 0 ~ 180deg	01,02,09	28
104 ~ 105	LFO TYPE	0 ~ 3	: SIN, TRI, EXP, LOG	01,02,0A	
106 ~ 110	MOD SMOOTH	1 ~ 9	: 1 ~ 9	01,02,06	26
111 ~ 115	(Reserved)				
116 ~ 117	ENVELOPE POLARITY	0 ~ 3	: +/+, -/-, +/-, -/+	01,02,0B	
118 ~ 119	(Reserved)				
DUAL CHORUS / FLANGER					
0 ~ 9	LEFT DELAY TIME	0 ~ 117	: 0.1 ~ 60.0ms	01,02,00	20
10 ~ 19	RIGHT DELAY TIME	0 ~ 117	: 0.1 ~ 60.0ms	01,02,01	21
20 ~ 26	LEFT MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,08	28
27 ~ 33	RIGHT MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,09	29
34 ~ 41	LEFT FEEDBACK	0 ~ C6	: -99 ~ 99	01,02,02	22
42 ~ 49	RIGHT FEEDBACK	0 ~ C6	: -99 ~ 99	01,02,03	23
50 ~ 54	LEFT HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,04	24
55 ~ 59	RIGHT HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,05	25
60 ~ 64	LEFT LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,02,06	26
65 ~ 69	RIGHT LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,02,07	27
70	LEFT POLARITY	0:+, 1:-		01,02,11	
71	RIGHT POLARITY	0:+, 1:-		01,02,12	
72 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,0C	
81 ~ 88	LFO SPEED	0 ~ AE	: 0.01 ~ 16.0Hz	01,02,0D	2C
89 ~ 97	MOD STEP	9 ~ EB	: OFF, 0.10 ~ 40.0Hz	01,02,0A	2A
98 ~ 103	LFO PHASE	0 ~ 24	: 0 ~ 180deg	01,02,0E	2D
104 ~ 105	LFO TYPE	0 ~ 3	: SIN, TRI, EXP, LOG	01,02,0F	
106 ~ 110	MOD SMOOTH	1 ~ 9	: 1 ~ 9	01,02,0B	2B
111 ~ 115	(Reserved)				
116 ~ 117	ENVELOPE POLARITY	0 ~ 3	: +/+, -/-, +/-, -/+	01,02,10	
118 ~ 119	(Reserved)				
MODULATION DELAY					
0 ~ 9	DELAY TIME	1 ~ 320	: 1 ~ 800ms	01,02,00	20
10 ~ 19	(Reserved)				
20 ~ 26	MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,04	24
27 ~ 33	(Reserved)				
34 ~ 41	FEEDBACK	0 ~ 63	: 0 ~ 99	01,02,01	21
42 ~ 49	(Reserved)				
50 ~ 54	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,02	22

55 ~ 59	(Reserved)				
60 ~ 64	LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,02,03	23
65 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,07	
81 ~ 88	LFO SPEED	0 ~ AE	: 0.01 ~ 16.0Hz	01,02,08	27
89 ~ 97	MOD STEP	9 ~ EB	: OFF, 0.10 ~ 40.0Hz	01,02,05	25
98 ~ 103	(Reserved)				
104 ~ 105	LFO TYPE	0 ~ 3	: SIN, TRI, EXP, LOG	01,02,09	
106 ~ 110	MOD SMOOTH	1 ~ 9	: 1 ~ 9	01,02,06	26
111 ~ 115	(Reserved)				
116	ENVELOPE POLARITY	0:+, 1:-		01,02,0A	
117	(Reserved)				
118 ~ 119	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,02,0B	
STEREO MODULATION DELAY					
0 ~ 9	DELAY TIME	1 ~ 190	: 1 ~ 400ms	01,02,00	20
10 ~ 19	(Reserved)				
20 ~ 26	MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,04	24
27 ~ 33	(Reserved)				
34 ~ 41	FEEDBACK	0 ~ 63	: 0 ~ 99	01,02,01	21
42 ~ 49	(Reserved)				
50 ~ 54	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,02	22
55 ~ 59	(Reserved)				
60 ~ 64	LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,02,03	23
65 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,07	
81 ~ 88	LFO SPEED	0 ~ AE	: 0.01 ~ 16.0Hz	01,02,08	27
89 ~ 97	MOD STEP	9 ~ EB	: OFF, 0.10 ~ 40.0Hz	01,02,05	25
98 ~ 103	LFO PHASE	0 ~ 24	: 0 ~ 180deg	01,02,09	28
104 ~ 105	LFO TYPE	0 ~ 3	: SIN, TRI, EXP, LOG	01,02,0A	
106 ~ 110	MOD SMOOTH	1 ~ 9	: 1 ~ 9	01,02,06	26
111 ~ 115	(Reserved)				
116 ~ 117	ENVELOPE POLARITY	0 ~ 3	: +/+, -/-, +/-, -/+	01,02,0B	
118 ~ 119	(Reserved)				
DUAL MODULATION DELAY					
0 ~ 9	LEFT DELAY TIME	1 ~ 190	: 1 ~ 400ms	01,02,00	20
10 ~ 19	RIGHT DELAY TIME	1 ~ 190	: 1 ~ 400ms	01,02,01	21
20 ~ 26	LEFT MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,08	28
27 ~ 33	RIGHT MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,09	29
34 ~ 41	LEFT FEEDBACK	0 ~ 63	: 0 ~ 99	01,02,02	22
42 ~ 49	RIGHT FEEDBACK	0 ~ 63	: 0 ~ 99	01,02,03	23
50 ~ 54	LEFT HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,04	24
55 ~ 59	RIGHT HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,05	25
60 ~ 64	LEFT LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,02,06	26
65 ~ 69	RIGHT LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,02,07	27
70 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,0C	

81 ~ 88	LFO SPEED	0 ~ AE	: 0.01 ~ 16.0Hz	01,02,0D	2C
89 ~ 97	MOD STEP	9 ~ EB	: OFF, 0.10 ~ 40.0Hz	01,02,0A	2A
98 ~ 103	LFO PHASE	0 ~ 24	: 0 ~ 180deg	01,02,0E	2D
104 ~ 105	LFO TYPE	0 ~ 3	: SIN, TRI, EXP, LOG	01,02,0F	
106 ~ 110	MOD SMOOTH	1 ~ 9	: 1 ~ 9	01,02,0B	2B
111 ~ 115	(Reserved)				
116 ~ 117	ENVELOPE POLARITY	0 ~ 3	: +/+, -/-, +/-, -/+	01,02,10	
118 ~ 119	(Reserved)				
TAPE DELAY					
0 ~ 10	DELAY TIME	1 ~ 320	: 1 ~ 800ms	01,02,00	20
11 ~ 18	FEEDBACK	0 ~ 63	: 0 ~ 99	01,02,01	21
19 ~ 23	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,02	22
24 ~ 28	LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,02,03	23
29 ~ 35	FLUTTER	0 ~ 63	: 0 ~ 99	01,02,05	25
36 ~ 42	S/N RATIO	0 ~ 30	: 96 ~ 48	01,02,06	26
43 ~ 46	SATURATE	1 ~ C	: 1 ~ 12	01,02,04	24
47 ~ 117	(Reserved)				
118 ~ 119	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,02,07	
PHASER					
0 ~ 6	MANUAL	0 ~ 63	: 0 ~ 99	01,02,01	20
7 ~ 13	(Reserved)				
14 ~ 20	MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,03	22
21 ~ 27	(Reserved)				
28 ~ 35	RESONANCE	0 ~ C6	: -99 ~ 99	01,02,02	21
36 ~ 43	(Reserved)				
44 ~ 45	STAGE	0 ~ 3	: 4, 8, 12, 16	01,02,00	
46 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,06	
81 ~ 88	LFO SPEED	0 ~ AE	: 0.01 ~ 16.0Hz	01,02,07	25
89 ~ 97	MOD STEP	9 ~ EB	: OFF, 0.10 ~ 40.0Hz	01,02,04	23
98 ~ 103	(Reserved)				
104 ~ 105	LFO TYPE	0 ~ 3	: SIN, TRI, EXP, LOG	01,02,08	
106 ~ 110	MOD SMOOTH	1 ~ 9	: 1 ~ 9	01,02,05	24
111 ~ 115	(Reserved)				
116	ENVELOPE POLARITY	0:+, 1:-		01,02,09	
117	(Reserved)				
118 ~ 119	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,02,0A	
STEREO PHASER					
0 ~ 6	MANUAL	0 ~ 63	: 0 ~ 99	01,02,01	20
7 ~ 13	(Reserved)				
14 ~ 20	MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,03	22
21 ~ 27	(Reserved)				
28 ~ 35	RESONANCE	0 ~ C6	: -99 ~ 99	01,02,02	21
36 ~ 43	(Reserved)				
44 ~ 45	STAGE	0 ~ 1	: 4, 8	01,02,00	

46 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,06	
81 ~ 88	LFO SPEED	0 ~ AE : 0.01 ~ 16.0Hz		01,02,07	25
89 ~ 97	MOD STEP	9 ~ EB : OFF, 0.10 ~ 40.0Hz		01,02,04	23
98 ~ 103	LFO PHASE	0 ~ 24 : 0 ~ 180deg		01,02,08	26
104 ~ 105	LFO TYPE	0 ~ 3 : SIN, TRI, EXP, LOG		01,02,09	
106 ~ 110	MOD SMOOTH	1 ~ 9 : 1 ~ 9		01,02,05	24
111 ~ 115	(Reserved)				
116 ~ 117	ENVELOPE POLARITY	0 ~ 3 : +/+, -/-, +/-, -/+		01,02,0A	
118 ~ 119	(Reserved)				
DUAL PHASER					
0 ~ 6	LEFT MANUAL	0 ~ 63 : 0 ~ 99		01,02,01	20
7 ~ 13	RIGHT MANUAL	0 ~ 63 : 0 ~ 99		01,02,02	21
14 ~ 20	LEFT MOD DEPTH	0 ~ 63 : 0 ~ 99		01,02,05	24
21 ~ 27	RIGHT MOD DEPTH	0 ~ 63 : 0 ~ 99		01,02,06	25
28 ~ 35	LEFT RESONANCE	0 ~ C6 : -99 ~ 99		01,02,03	22
36 ~ 43	RIGHT RESONANCE	0 ~ C6 : -99 ~ 99		01,02,04	23
44 ~ 45	STAGE	0 ~ 1 : 4, 8		01,02,00	
46 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,09	
81 ~ 88	LFO SPEED	0 ~ AE : 0.01 ~ 16.0Hz		01,02,0A	28
89 ~ 97	MOD STEP	9 ~ EB : OFF, 0.10 ~ 40.0Hz		01,02,07	26
98 ~ 103	LFO PHASE	0 ~ 24 : 0 ~ 180deg		01,02,0B	29
104 ~ 105	LFO TYPE	0 ~ 3 : SIN, TRI, EXP, LOG		01,02,0C	
106 ~ 110	MOD SMOOTH	1 ~ 9 : 1 ~ 9		01,02,08	27
111 ~ 115	(Reserved)				
116 ~ 117	ENVELOPE POLARITY	0 ~ 3 : +/+, -/-, +/-, -/+		01,02,0D	
118 ~ 119	(Reserved)				
PITCH SHIFTER					
0 ~ 6	PITCH	0 ~ 30 : -2400 ~ 2400cent		01,02,00	20
7 ~ 13	FINE	0 ~ 64 : -50 ~ 50cent		01,02,01	21
14 ~ 23	DELAY TIME	1 ~ 2BC : 1 ~ 700ms		01,02,02	22
24 ~ 30	FEEDBACK	0 ~ 63 : 0 ~ 99		01,02,03	23
31 ~ 35	HIGH DAMP	0 ~ 19 : THRU, 16K ~ 1KHz		01,02,04	24
36	TYPE	0:SLOW, 1:FAST		01,02,05	
37 ~ 117	(Reserved)				
118 ~ 119	INPUT SOURCE	0 ~ 2 : L+R, Lch, Rch		01,02,06	
ENSEMBLE					
0 ~ 8	SPEED	1 ~ AF : 0.01 ~ 16.0Hz		01,02,00	20
9 ~ 15	DEPTH	0 ~ 63 : 0 ~ 99		01,02,01	21
16 ~ 25	DELAY TIME	1 ~ 320 : 1 ~ 800ms		01,02,02	22
26 ~ 33	FEEDBACK	0 ~ C6 : -99 ~ 99		01,02,03	23
34 ~ 38	HIGH DAMP	0 ~ 19 : THRU, 16K ~ 1KHz		01,02,04	24
39 ~ 43	LOW DAMP	0 ~ 1F : THRU, 31.5 ~ 1KHz		01,02,05	25
44 ~ 117	(Reserved)				
118 ~ 119	INPUT SOURCE	0 ~ 2 : L+R, Lch, Rch		01,02,06	

DOPPLER					
0 ~ 8	SPEED	1 ~ 190	: 0.01 ~ 4.00Hz	01,02,00	20
9 ~ 15	PITCH	0 ~ 63	: 0 ~ 99	01,02,01	21
16 ~ 24	SPREAD	0 ~ C6	: -99 ~ 99	01,02,02	22
25 ~ 34	DELAY TIME	1 ~ 2A8	: 1 ~ 680ms	01,02,03	23
35 ~ 117	(Reserved)				
118 ~ 119	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,02,04	
HORN, ROTOR					
0	SPEED	0:SLOW, 1:FAST		01,02,00	20
1 ~ 9	SLOW SPEED	0 ~ AF	: 0.00 ~ 16.0Hz	01,02,01	21
10 ~ 18	FAST SPEED	0 ~ AF	: 0.00 ~ 16.0Hz	01,02,02	22
19 ~ 25	ACCELERATION	1 ~ 18	: 1 ~ 24	01,02,03	23
26 ~ 32	MIC DISTANCE	0 ~ 63	: 0 ~ 99	01,02,04	24
33 ~ 41	MIC SPREAD	0 ~ C6	: -99 ~ 99	01,02,05	25
42 ~ 117	(Reserved)				
118 ~ 119	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,02,06	
STEREO TREMOLO					
0 ~ 8	SPEED	1 ~ AF	: 0.01 ~ 16.0Hz	01,02,00	20
9 ~ 15	DEPTH	0 ~ 63	: 0 ~ 99	01,02,01	21
16 ~ 24	SPREAD	0 ~ 63	: 0 ~ 99	01,02,02	22
25 ~ 31	DUTY	A ~ 5A	: 10 ~ 90	01,02,03	23
32 ~ 38	EDGE	1 ~ 22	: 1 ~ 34	01,02,04	24
39 ~ 119	(Reserved)				
STEREO RING					
0 ~ 8	FREQUENCY	0 ~ 1F4	: 0.00 ~ 5.00Hz	01,02,00	20
9 ~ 17	(Reserved)				
18 ~ 22	LPF	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,01	21
23 ~ 119	(Reserved)				
DUAL RING					
0 ~ 8	LEFT FREQUENCY	0 ~ 1F4	: 0.00 ~ 5.00Hz	01,02,00	20
9 ~ 17	RIGHT FREQUENCY	0 ~ 1F4	: 0.00 ~ 5.00Hz	01,02,01	21
18 ~ 22	LEFT LPF	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,02	22
23 ~ 27	RIGHT LPF	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,03	23
28 ~ 119	(Reserved)				
STEREO FILTER					
0 ~ 1	TYPE	0 ~ 2	: LPF, BPF, HPF	01,02,00	
2 ~ 3	(Reserved)				
4 ~ 10	MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,03	22
11 ~ 17	(Reserved)				
18 ~ 24	FREQUENCY	0 ~ 63	: 0 ~ 99	01,02,01	20
25 ~ 31	(Reserved)				
32 ~ 38	RESONANCE	0 ~ 63	: 0 ~ 99	01,02,02	21
39 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,06	
81 ~ 88	LFO SPEED	0 ~ AE	: 0.01 ~ 16.0Hz	01,02,07	25

89 ~ 97	MOD STEP	9 ~ EB	: OFF, 0.10 ~ 40.0Hz	01,02,04	23
98 ~ 103	LFO PHASE	0 ~ 24	: 0 ~ 180deg	01,02,08	26
104 ~ 105	LFO TYPE	0 ~ 3	: SIN, TRI, EXP, LOG	01,02,09	
106 ~ 110	MOD SMOOTH	1 ~ 9	: 1 ~ 9	01,02,05	24
111 ~ 115	(Reserved)				
116 ~ 117	ENVELOPE POLARITY	0 ~ 3	: +/+, -/-, +/-, -/+	01,02,0A	
118 ~ 119	(Reserved)				
DUAL FILTER					
0 ~ 1	LEFT TYPE	0 ~ 2	: LPF, BPF, HPF	01,02,00	
2 ~ 3	RIGHT TYPE	0 ~ 2	: LPF, BPF, HPF	01,02,01	
4 ~ 10	LEFT MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,06	24
11 ~ 17	RIGHT MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,07	25
18 ~ 24	LEFT FREQUENCY	0 ~ 63	: 0 ~ 99	01,02,02	20
25 ~ 31	RIGHT FREQUENCY	0 ~ 63	: 0 ~ 99	01,02,03	21
32 ~ 38	LEFT RESONANCE	0 ~ 63	: 0 ~ 99	01,02,04	22
39 ~ 45	RIGHT RESONANCE	0 ~ 63	: 0 ~ 99	01,02,05	23
46 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,0A	
81 ~ 88	LFO SPEED	0 ~ AE	: 0.01 ~ 16.0Hz	01,02,0B	28
89 ~ 97	MOD STEP	9 ~ EB	: OFF, 0.10 ~ 40.0Hz	01,02,08	26
98 ~ 103	LFO PHASE	0 ~ 24	: 0 ~ 180deg	01,02,0C	29
104 ~ 105	LFO TYPE	0 ~ 3	: SIN, TRI, EXP, LOG	01,02,0D	
106 ~ 110	MOD SMOOTH	1 ~ 9	: 1 ~ 9	01,02,09	27
111 ~ 115	(Reserved)				
116 ~ 117	ENVELOPE POLARITY	0 ~ 3	: +/+, -/-, +/-, -/+	01,02,0E	
118 ~ 119	(Reserved)				
STEREO WAH					
0 ~ 6	MANUAL	0 ~ 63	: 0 ~ 99	01,02,00	20
7 ~ 13	MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,06	21
14 ~ 17	TOP RANGE	1 ~ A	: 1 ~ 10	01,02,03	
18 ~ 21	BOTTOM RANGE	1 ~ A	: 1 ~ 10	01,02,01	
22 ~ 25	TOP Q	1 ~ A	: 1 ~ 10	01,02,04	
26 ~ 29	BOTTOM Q	1 ~ A	: 1 ~ 10	01,02,02	
30 ~ 33	CURVE	0 ~ 2	: A, B, C	01,02,05	
34 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,09	
81 ~ 88	LFO SPEED	0 ~ AE	: 0.01 ~ 16.0Hz	01,02,0A	24
89 ~ 97	MOD STEP	9 ~ EB	: OFF, 0.10 ~ 40.0Hz	01,02,07	22
98 ~ 103	LFO PHASE	0 ~ 24	: 0 ~ 180deg	01,02,0B	25
104 ~ 105	LFO TYPE	0 ~ 3	: SIN, TRI, EXP, LOG	01,02,0C	
106 ~ 110	MOD SMOOTH	1 ~ 9	: 1 ~ 9	01,02,08	23
111 ~ 115	(Reserved)				
116 ~ 117	ENVELOPE POLARITY	0 ~ 3	: +/+, -/-, +/-, -/+	01,02,0D	
118 ~ 119	(Reserved)				
TALKING MODULATOR					
0 ~ 6	MANUAL	0 ~ 63	: 0 ~ 99	01,02,00	20

7 ~ 13	MOD DEPTH	0 ~ 63	: 0 ~ 99	01,02,04	21
14 ~ 16	TOP VOWEL	0 ~ 4	: "A", "E", "I", "O", "U"	01,02,03	
17 ~ 19	CENTER VOWEL	0 ~ 4	: "A", "E", "I", "O", "U"	01,02,02	
20 ~ 22	BOTTOM VOWEL	0 ~ 4	: "A", "E", "I", "O", "U"	01,02,01	
23 ~ 79	(Reserved)				
80	MOD SOURCE	0:LFO, 1:ENV		01,02,07	
81 ~ 88	LFO SPEED	0 ~ AE	: 0.01 ~ 16.0Hz	01,02,08	24
89 ~ 97	MOD STEP	9 ~ EB	: OFF, 0.10 ~ 40.0Hz	01,02,05	22
98 ~ 103	(Reserved)				
104 ~ 105	LFO TYPE	0 ~ 3	: SIN, TRI, EXP, LOG	01,02,09	
106 ~ 110	MOD SMOOTH	1 ~ 9	: 1 ~ 9	01,02,06	23
111 ~ 115	(Reserved)				
116	ENVELOPE POLARITY	0:+, 1:-		01,02,0A	
117	(Reserved)				
118 ~ 119	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,02,0B	
STEREO COMPRESSOR/LIMITER					
0 ~ 6	THRESHOLD	0 ~ 2F	: -48 ~ -1	01,02,00	20
7 ~ 13	(Reserved)				
14 ~ 20	RATIO	0 ~ 5	: 1/2 ~ 1/INF	01,02,01	21
21 ~ 27	(Reserved)				
28 ~ 36	ATTACK	0 ~ 3A	: 0.02 ~ 90	01,02,02	22
37 ~ 45	(Reserved)				
46 ~ 54	RELEASE	0 ~ 29	: 40 ~ 9000	01,02,03	23
55 ~ 63	(Reserved)				
64 ~ 70	GAIN	0 ~ 18	: 0 ~ 24	01,02,04	24
71 ~ 77	(Reserved)				
78 ~ 81	L/R LINK	0 ~ 9	: OFF ~ EQ_L+R	01,02,05	
82 ~ 119	(Reserved)				
DUAL COMPRESSOR/LIMITER					
0 ~ 6	LEFT THRESHOLD	0 ~ 2F	: -48 ~ -1	01,02,00	20
7 ~ 13	RIGHT THRESHOLD	0 ~ 2F	: -48 ~ -1	01,02,01	21
14 ~ 20	LEFT RATIO	0 ~ 5	: 1/2 ~ 1/INF	01,02,02	22
21 ~ 27	RIGHT RATIO	0 ~ 5	: 1/2 ~ 1/INF	01,02,03	23
28 ~ 36	LEFT ATTACK	0 ~ 3A	: 0.02 ~ 90	01,02,04	24
37 ~ 45	RIGHT ATTACK	0 ~ 3A	: 0.02 ~ 90	01,02,05	25
46 ~ 54	LEFT RELEASE	0 ~ 29	: 40 ~ 9000	01,02,06	26
55 ~ 63	RIGHT RELEASE	0 ~ 29	: 40 ~ 9000	01,02,07	27
64 ~ 70	LEFT GAIN	0 ~ 18	: 0 ~ 24	01,02,08	28
71 ~ 77	RIGHT GAIN	0 ~ 18	: 0 ~ 24	01,02,09	29
78 ~ 119	(Reserved)				
STEREO GATE					
0 ~ 6	THRESHOLD	0 ~ 4F	: -80 ~ -1	01,02,00	20
7 ~ 13	(Reserved)				
14 ~ 22	ATTACK	0 ~ 4D	: 0.10 ~ 4000	01,02,01	21
23 ~ 31	(Reserved)				

32 ~ 40	RELEASE	0 ~ 4D	: 0.10 ~ 4000	01,02,02	22
41 ~ 49	(Reserved)				
50 ~ 53	L/R LINK	0 ~ 9	: OFF ~ EQ_L+R	01,02,03	
54 ~ 119	(Reserved)				
DUAL GATE					
0 ~ 6	LEFT THRESHOLD	0 ~ 4F	: -80 ~ -1	01,02,00	20
7 ~ 13	RIGHT THRESHOLD	0 ~ 4F	: -80 ~ -1	01,02,01	21
14 ~ 22	LEFT ATTACK	0 ~ 4D	: 0.10 ~ 4000	01,02,02	22
23 ~ 31	RIGHT ATTACK	0 ~ 4D	: 0.10 ~ 4000	01,02,03	23
32 ~ 40	LEFT RELEASE	0 ~ 4D	: 0.10 ~ 4000	01,02,04	24
41 ~ 49	RIGHT RELEASE	0 ~ 4D	: 0.10 ~ 4000	01,02,05	25
50 ~ 119	(Reserved)				
EARLY REFLECTION					
0 ~ 1	TYPE	0 ~ 3	: ROOM,HALL,GATE,REVERS	01,02,00	
2 ~ 10	PRE DELAY	0 ~ 12C	: 0 ~ 300	01,02,01	20
11 ~ 19	ER TIME	1 ~ 190	: 1 ~ 400	01,02,02	21
20 ~ 24	LOW CUT	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,02,04	23
25 ~ 29	HIGH CUT	0 ~ 19	: THRU, 16K ~ 1KHz	01,02,03	22
30 ~ 36	DENSITY	0 ~ 63	: 0 ~ 99	01,02,05	24
37 ~ 117	(Reserved)				
118 ~ 119	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,02,06	
SATURATOR					
0 ~ 1	BOOST	0:OFF, 1:ON		01,02,01	21
2 ~ 8	GAIN	1 ~ 3C	: 1 ~ 60	01,02,00	20
9 ~ 15	LEVEL	1 ~ 3C	: 1 ~ 60	01,02,02	22
16 ~ 22	BASS	0 ~ 3C	: -15.0 ~ 15.0dB	01,02,03	
23 ~ 29	TREBLE	0 ~ 3C	: -15.0 ~ 15.0dB	01,02,07	
30 ~ 36	MID FC	0 ~ 28	: 80 ~ 8KHz	01,02,05	
37 ~ 43	MID GAIN	0 ~ 3C	: -15.0 ~ 15.0dB	01,02,04	
44 ~ 50	MID Q	0 ~ 61	: 0.3 ~ 10.0	01,02,06	
51 ~ 117	(Reserved)				
118 ~ 119	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,02,08	
STEREO 3BAND EQ					
0 ~ 6	EQ LEVEL	1 ~ 3D	: -24.0 ~ 6.0dB	01,02,09	20
7 ~ 13	BAND 1 FREQ	0 ~ 28	: 80 ~ 8KHz	01,02,01	
14 ~ 20	BAND 1 GAIN	0 ~ 3C	: -15.0 ~ 15.0dB	01,02,00	
21 ~ 27	BAND 1 Q	0 ~ 61	: 0.3 ~ 10.0	01,02,02	
28 ~ 34	BAND 2 FREQ	0 ~ 28	: 80 ~ 8KHz	01,02,04	
35 ~ 41	BAND 2 GAIN	0 ~ 3C	: -15.0 ~ 15.0dB	01,02,03	
42 ~ 48	BAND 2 Q	0 ~ 61	: 0.3 ~ 10.0	01,02,05	
49 ~ 55	BAND 3 FREQ	0 ~ 28	: 80 ~ 8KHz	01,02,07	
56 ~ 62	BAND 3 GAIN	0 ~ 3C	: -15.0 ~ 15.0dB	01,02,06	
63 ~ 69	BAND 3 Q	0 ~ 61	: 0.3 ~ 10.0	01,02,08	
70 ~ 119	(Reserved)				
STEREO DUCKER					
0 ~ 6	SENSITIVITY	0 ~ 63	: 0 ~ 99	01,02,00	20

7 ~ 13	(Reserved)				
14 ~ 22	ATTACK	0 ~ 4D	: 0.10 ~ 4000	01,02,01	21
23 ~ 31	(Reserved)				
32 ~ 40	RELEASE	0 ~ 4D	: 0.10 ~ 4000	01,02,02	22
41 ~ 49	(Reserved)				
50 ~ 53	L/R LINK	0 ~ 9	: OFF ~ EQ_L+R	01,02,03	23
54 ~ 119	(Reserved)				

TABLE 4 FX1/FX2 PROGRAM PARAMETERS

BIT No. *1	PARAMETERS	DATA(HEX)	: VALUE	PARAM. No. *5	EXPRESSION TARGET DATA *6
LONG DELAY					
352 ~ 360	(Reserved)				
361 ~ 370	DELAY TIME	1 ~ 3FF	: 1 ~ 1023ms	01,04,00	60
371 ~ 498	(Reserved)				
499 ~ 503	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,04,02	62
504 ~ 508	(Reserved)				
509 ~ 513	LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,04,03	63
514 ~ 518	(Reserved)				
519 ~ 525	FEEDBACK	0 ~ 63	: 0 ~ 99	01,04,01	61
526 ~ 541	(Reserved)				
542 ~ 543	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,04,04	
TEMPO DELAY					
352 ~ 362	(Reserved)				
363 ~ 370	TEMPO	3C ~ D0	: 60 ~ 208	01,04,00	60
371 ~ 397	(Reserved)				
398 ~ 400	FACTOR	0 ~ 6	: 1/4 ~ 1	01,04,01	
401 ~ 498	(Reserved)				
499 ~ 503	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,04,03	62
504 ~ 508	(Reserved)				
509 ~ 513	LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,04,04	63
514 ~ 518	(Reserved)				
519 ~ 525	FEEDBACK	0 ~ 63	: 0 ~ 99	01,04,02	61
526 ~ 541	(Reserved)				
542 ~ 543	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,04,05	
STEREO DELAY					
352 ~ 361	(Reserved)				
362 ~ 370	DELAY TIME	1 ~ 1FF	: 1 ~ 511ms	01,04,00	60
371 ~ 498	(Reserved)				
499 ~ 503	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,04,02	62
504 ~ 508	(Reserved)				
509 ~ 513	LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,04,03	63
514 ~ 525	(Reserved)				
526 ~ 532	FEEDBACK	0 ~ 63	: 0 ~ 99	01,04,01	61
533 ~ 543	(Reserved)				

DUAL DELAY					
352 ~ 361	(Reserved)				
362 ~ 370	LEFT DELAY TIME	1 ~ 1FF	: 1 ~ 511ms	01,04,00	60
371 ~ 391	(Reserved)				
392 ~ 400	RIGHT DELAY TIME	1 ~ 1FF	: 1 ~ 511ms	01,04,01	61
401 ~ 498	(Reserved)				
499 ~ 503	LEFT HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,04,04	64
504 ~ 508	RIGHT HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,04,05	65
509 ~ 513	LEFT LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,04,06	66
514 ~ 518	RIGHT LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,04,07	67
519 ~ 525	LEFT FEEDBACK	0 ~ 63	: 0 ~ 99	01,04,02	62
526 ~ 532	RIGHT FEEDBACK	0 ~ 63	: 0 ~ 99	01,04,03	63
533 ~ 543	(Reserved)				
CROSS DELAY					
352 ~ 361	(Reserved)				
362 ~ 370	LEFT DELAY TIME	1 ~ 1FF	: 1 ~ 511ms	01,04,00	60
371 ~ 391	(Reserved)				
392 ~ 400	RIGHT DELAY TIME	1 ~ 1FF	: 1 ~ 511ms	01,04,01	61
401 ~ 498	(Reserved)				
499 ~ 503	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,04,03	63
504 ~ 508	(Reserved)				
509 ~ 513	LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,04,04	64
514 ~ 525	(Reserved)				
526 ~ 532	FEEDBACK	0 ~ 63	: 0 ~ 99	01,04,02	62
533 ~ 543	(Reserved)				
L/C/R DELAY					
352 ~ 360	(Reserved)				
361 ~ 370	LEFT DELAY TIME	1 ~ 3FF	: 1 ~ 1023ms	01,04,00	60
371 ~ 380	RIGHT DELAY TIME	1 ~ 3FF	: 1 ~ 1023ms	01,04,01	61
381 ~ 390	CENTER DELAY TIME	1 ~ 3FF	: 1 ~ 1023ms	01,04,02	62
391 ~ 498	(Reserved)				
499 ~ 503	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,04,04	64
504 ~ 508	(Reserved)				
509 ~ 513	LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,04,05	65
514 ~ 518	(Reserved)				
519 ~ 525	FEEDBACK	0 ~ 63	: 0 ~ 99	01,04,03	63
526 ~ 541	(Reserved)				
542 ~ 543	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,04,06	
MULTI TAP DELAY					
352 ~ 360	(Reserved)				
361 ~ 370	DELAY TIME 1	1 ~ 3FF	: 1 ~ 1023ms	01,04,00	60
371 ~ 380	DELAY TIME 2	1 ~ 3FF	: 1 ~ 1023ms	01,04,01	61
381 ~ 390	DELAY TIME 3	1 ~ 3FF	: 1 ~ 1023ms	01,04,02	62
391 ~ 400	DELAY TIME 4	1 ~ 3FF	: 1 ~ 1023ms	01,04,03	63
401 ~ 410	DELAY TIME 5	1 ~ 3FF	: 1 ~ 1023ms	01,04,04	64
411 ~ 420	DELAY TIME 6	1 ~ 3FF	: 1 ~ 1023ms	01,04,05	65

421 ~ 426	PAN 1	0 ~ 1E	: L15 ~ R15	01,04,0F	6F
427 ~ 432	PAN 2	0 ~ 1E	: L15 ~ R15	01,04,10	70
433 ~ 438	PAN 3	0 ~ 1E	: L15 ~ R15	01,04,11	71
439 ~ 444	PAN 4	0 ~ 1E	: L15 ~ R15	01,04,12	72
445 ~ 450	PAN 5	0 ~ 1E	: L15 ~ R15	01,04,13	73
451 ~ 456	PAN 6	0 ~ 1E	: L15 ~ R15	01,04,14	74
457 ~ 463	LEVEL 1	0 ~ 5B	: -INF ~ 0.0dB	01,04,09	69
464 ~ 470	LEVEL 2	0 ~ 5B	: -INF ~ 0.0dB	01,04,0A	6A
471 ~ 477	LEVEL 3	0 ~ 5B	: -INF ~ 0.0dB	01,04,0B	6B
478 ~ 484	LEVEL 4	0 ~ 5B	: -INF ~ 0.0dB	01,04,0C	6C
485 ~ 491	LEVEL 5	0 ~ 5B	: -INF ~ 0.0dB	01,04,0D	6D
492 ~ 498	LEVEL 6	0 ~ 5B	: -INF ~ 0.0dB	01,04,0E	6E
499 ~ 503	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,04,07	67
504 ~ 508	(Reserved)				
509 ~ 513	LOW DAMP	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,04,08	68
514 ~ 518	(Reserved)				
519 ~ 525	FEEDBACK	0 ~ 63	: 0 ~ 99	01,04,06	66
526 ~ 541	(Reserved)				
542 ~ 543	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,04,15	
ROOM REVERB					
352 ~ 360	PRE DELAY	0 ~ 12C	: 0 ~ 300ms	01,04,00	60
361 ~ 369	REVERB TIME	0 ~ 1C	: 0.10 ~ 5.2s	01,04,01	61
370 ~ 374	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,04,02	62
375 ~ 379	LOW CUT	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,04,03	63
380 ~ 386	DENSITY	0 ~ 63	: 0 ~ 99	01,04,04	64
387 ~ 393	DIFFUSION	0 ~ 63	: 0 ~ 99	01,04,05	65
394 ~ 541	(Reserved)				
542 ~ 543	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,04,06	
HALL REVERB, PLATE REVERB					
352 ~ 360	PRE DELAY	0 ~ 12C	: 0 ~ 300ms	01,04,00	60
361 ~ 369	REVERB TIME	~ 1F	: 0.26 ~ 16s	01,04,01	61
370 ~ 374	HIGH DAMP	0 ~ 19	: THRU, 16K ~ 1KHz	01,04,02	62
375 ~ 379	LOW CUT	0 ~ 1F	: THRU, 31.5 ~ 1KHz	01,04,03	63
380 ~ 386	DENSITY	0 ~ 63	: 0 ~ 99	01,04,04	64
387 ~ 393	DIFFUSION	0 ~ 63	: 0 ~ 99	01,04,05	65
394 ~ 541	(Reserved)				
542 ~ 543	INPUT SOURCE	0 ~ 2	: L+R, Lch, Rch	01,04,06	

*1 Bit Offset Number

byte offset no.

Diagram illustrating the bit numbering for a 16-bit integer. The left side shows a 16-bit integer with bits numbered 0 to 15, where 0 is the LSB and 15 is the MSB. The right side shows a 16-bit integer with bits numbered $8n+0$ to $8n+15$, where $8n+0$ is the LSB and $8n+15$ is the MSB.

*2 00 ~ 0F : MIXER/SOURCE PARAMETERS

```

00      01      : MIXER/SOURCE PA
20 ~      : FX1 PARAMETERS

```

```

20 ~ : FX1 PARAMETERS
40 ~ : FX2 PARAMETERS

```

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10      : THE PARAMETERS
60 ~    : DLY/REV PARAMETERS

```

The parameter which has a value in column of the EXPRESSION TARGET DATA can be selected as

the EXPRESSION TARGET parameter.

*3 The value is changed depend on the parameter which set as the expression target data.

*4 00 : WARP!
01~03 : PEDAL 1~3
04~7C : CONTROL CHANGE 0~120
7D : AFTER TOUCH
7E : PITCH BEND
7F : VELOCITY
80 : NOTE NUMBER

*5 Main Page Number(center value), 02 is for the FX1. Use the value 03 for the FX2.

*6 This value, 2x is for the FX1. Use the value 4x for the FX2.
The parameter which does NOT have the value in column of the EXPRESSION TARGET DATA
can NOT be selected as the EXPRESSION TARGET parameter.